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AUTHOR Chandler, Theodore A.; Mako, Thomas J.
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ABSTRACT

While many researchers have examined the effects of test anxiety on examination completion time and performance, most have not controlled for ability in their studies. In this study, it was hypothesized that, when ability was controlled, college students high in state anxiety would take significantly longer to complete an examination and would score significantly lower in performance than would students low in state anxiety. College students (N=88) were administered the state anxiety section of the State-Trait Anxiety Inventory immediately prior to an examination. Subject ability was determined by American College Testing scores. While the results revealed no significant differences between high and low anxiety students in the time taken to complete the examination, scores on first and second examinations were found to decrease as state anxiety increased, lending support to the hypothesis that students high in state anxiety will score significantly lower in examination performance than will students low in state anxiety, when ability is controlled. (NB)

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Exam Performance as a Function of Exam Completion Time, State Anxiety and Ability

Theodore A. Chandler
Professor of Educational Psychology

Thomas J. Mako
Graduate Assistant

Kent State University
Kent, Ohio 44242

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Exam Performance as a Function of Exam Completion Time and State Anxiety

Abstract

A total of 88 undergraduate students completed the state anxiety scale of the State-Trait Anxiety Inventory prior to taking a course exam. Exam completion items was noted. It was hypothesized that students higher in state anxiety, in comparison with those lower, would take significantly longer to complete exams. The second hypothesis, however, was supported: Students higher in state anxiety (compared to those lower) scored significantly lower on the exam.

Exam Performance as a Function of Exam Completion Time and State Anxiety

Johnson (1977) found significant differences between the variances of students finishing an exam early, late, or in the middle. However, the high and low scores in both extreme groups tended to balance out, thus there was no significant difference in the means of the three groups. Mixed results were also the case in Terranova's study (1972). Although no significant linear relationships were found, significant (though low) curvilinear regressions of time on score were found in grades seven and nine. Evidence from Klinger (1984) was more clear-cut: Test anxiety scores were not predictive of performance. Because of the trends in their data, Paul and Rossenkoetter (1980) speculated that there may be a tendency for better students to finish early on tests. Clearly, one of the shortcomings of previous research is that ability has not been controlled.

High student anxiety interferes with examination performance (Sieber, O'Neil, & Tobias, 1977). Gross and Mastenbrook (1980) found that high anxiety not only interfered with recalling needed information but also with being able to use a known problem-solving strategy. The ego-enhancement or self-worth theory (Covington & Beery, 1976) suggests that high anxiety lowers performance because highly anxious students worry about the negative effects of not doing well and how others will perceive them if they are not successful. Achievement, for

these students, gets articulated with self-worth. Failing in performance can mean failing as an individual. Hence, it becomes a threat to self-esteem.

It is hypothesized that students high in state anxiety in comparison to those lower will take significantly longer to complete an examination, where ability is held constant. Furthermore, it is hypothesized that students higher in state anxiety, when ability is controlled, will score significantly lower in performance than those lower in state anxiety.

Method

Subjects

A sample of 88 students enrolled in three sections of the same instructor's undergraduate human development and learning course participated in the study. The majority of the students were sophomores and juniors preparing to teach. Approximately 80% of the sample were female.

Instrument

The State-Trait Anxiety Inventory (STAI) is a self report questionnaire developed by Spielberger, Gorsuch and Lushene (1970) and revised by Speilberger et al (1983). The state anxiety section (trait anxiety section was not administered) consists of 20 statements for which subjects indicate their feelings at the time they complete the instrument on a 4 point Likert-type scale. There is no time limit.

Procedure

Immediately prior to the examination each of the three classes was administered the state anxiety scale of the STAI. The study had already been explained to the class in previous sessions in a very general way. "We are trying to determine what factors might explain how well one does on an exam." Standardized directions for administering STAI were followed. As each student handed in the exam, the time was written on the answer sheet. Ability was determined by obtaining American College Testing (ACT) scores from the Registrar.

Results

The STAI manual reports a state anxiety mean of 36.47 (SD = 10.02) for males and a mean of 38.76 (SD = 11.95) for females. Pearson product-moment correlations were calculated to explore the relationships between the variables. (A significance level of $p<.05$ was selected.) ACT scores correlated significantly with the exam (-.28). A significant correlation was not obtained between ACT scores and state anxiety (-.19). State anxiety was negatively correlated with the score on the exam (-.28), but was not correlated with time to completion for the exam (.19).

Discussion

As state anxiety increased scored on the first and second exams decreased, giving support to the second hypothesis. Since this is a correlation based upon the administering of the state anxiety measure at the time of the exam, no causal connection can be assumed. Equally plausible are at least two

interpretations: Anxiety may cause students difficulty in expressing their knowledge or performing poorly may cause students to become anxious.

Considering an exam in a course is an unknown, time to complete might not be expected to be significantly correlated with state anxiety. A confounding variable is that the more anxious students may spend more time going back over the questions and read very cautiously, so that time becomes crucial and increases one's anxiety. Probably this could have been controlled by asking the students to indicate the time they actually completed the exam as well as the time it was handed in.

What this study and others indicate is that the issue of test anxiety is much more complicated than originally thought. First, we must disentangle dispositional (trait) anxiety from situational (state) anxiety. For the student who is already quite high in dispositional anxiety, additional anxiety generated by a test pushes that person into the debilitating area. For such students various counseling strategies using both behavioral and cognitive approaches may help. Second, where state anxiety appears to be the primary culprit one must further assess to determine what may be contributing to this. Several possibilities exist: Difficulty of exam, actual and perceived strategy and degree of preparation; attentional and academic skills (e.g. information-processing and reading ability) deficits (Benjamin, McKeachie, Lin & Holinger, 1981;

Paulman & Kennelly, 1984). In addition, students may be anxious taking exams because they have never learned the skills in exam-taking strategies. Complex as humans are, chances are that there will be tremendous variation in the causes of test anxiety. Until we can begin to assess and isolate these deficits, it will not be possible to develop remedial programs.

Chandler, T. + Mako, T. Exam performance as a function of exam completion time, state anxiety & ability.

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